

APPLICATION FOR UNITED STATES LETTERS PATENT

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for

**HOUSING HAVING A CABLE CONDUIT AND RELATED
SYSTEMS AND METHODS**

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HOUSING HAVING A CABLE CONDUIT AND RELATED SYSTEMS AND METHODS

CROSS-REFERENCED APPLICATIONS

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[1] This application is related to the following patent applications: U.S. Utility Patent Application serial no. titled STORAGE COMPARTMENT WITH POSITIONABLE HOLDER FOR HOLDING A COMPACT DISC, attorney docket number 200314060-1 (1964-45-3), filed on 12 March 2004; U.S. Utility Patent
10 Application serial no. titled STORAGE COMPARTMENT FOR STORING ITEMS, AND RELATED SYSTEMS AND METHODS, attorney docket number 200314061-1 (1964-46-3), filed on 12 March 2004; U.S. Design Patent Application serial no. titled PORTION OF A HOUSING FOR PROCESSING CIRCUITRY OR OTHER SIMILAR ITEM, attorney docket number 200314058-1
15 (1964-47-5), filed on 12 March 2004; and U.S. Design Patent Application serial no. titled POWER SWITCH FOR PROCESSING CIRCUITRY OR OTHER SIMILAR ITEM, attorney docket number 200402715-1 (1964-47-6), filed on 12 March 2004, which are incorporated by reference.

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BACKGROUND

[2] Many computer systems include processing circuitry for performing various computer functions, such as receiving and generating data and executing programs to perform specific tasks, one or more peripheral devices that the circuitry may read
25 data from, write data to, or otherwise control, and a communication medium, such as, for example, a cable, to couple the peripheral devices to the circuitry. The computer systems also typically include an interface having one or more connectors for coupling the communication medium to the processing circuitry. Examples of peripheral devices include a keyboard, a mouse, a printer, a portable
30 storage device, a personal data assistant (PDA), a wireless receiver/transceiver and/or a camera.

[3] FIG. 1 is a perspective view of a computer system **10** that includes an interface **12** having multiple connectors **13a – 13g**, a housing **14** for protecting processing circuitry (not shown), and a peripheral device **16** (here a digital camera). A communication medium **18** (here a cable) couples the camera **16** to the circuitry via the connector **13f** so that the circuitry can read data stored in the camera. Because the interface **12** is typically located on a vertical wall of the housing **14** to protect the connector **13f**, the cable **18** is typically long enough to allow one to place the camera **16** on top of the housing **14** or some other horizontal surface while the camera remains coupled to the processing circuitry.

[4] Unfortunately, a long cable **18** can cause problems. For example, if the camera **16** is placed on top of the housing **14**, the cable **18** may lie on top of the housing or next to the housing as it extends between the camera and the interface **12**, and thus may lie exposed between the camera and interface. When exposed, one may snag the cable **18** with one's arm, hand or some other object, and thus could pull the cable and damage the camera **16**, the cable **18**, the connector **13f**, or the processing circuitry.

SUMMARY

In one aspect of the invention, a housing for a computer system includes a passage operable to hold a communication medium for coupling a device outside the housing to processing circuitry of the system. The passage includes a first opening and a second opening for allowing the communication medium disposed in the passage to extend through the passage. By disposing all or section of the communication medium in the passage, the conduit reduces the coupler's exposure between the interface of the processing circuitry and a peripheral device coupled to the interface, and thus protects the communication medium.

BRIEF DESCRIPTION OF THE FIGURES

[3] **FIG. 1** is a perspective view of a conventional computer system that includes a conventional camera placed on top of the system's housing and coupled to the system's processing circuitry with a cable.

5 [4] **FIG. 2** is a perspective view of a computer system that incorporates a cable conduit according to an embodiment of the invention.

[5] **FIG. 3** is a perspective, exploded view of the conduit in **FIG. 2** according to an embodiment of the invention.

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DETAILED DESCRIPTION

[6] **FIG. 2** is a perspective view of a computer system **30**, such as a server or personal computer (PC), which incorporates a passage **32** according to an embodiment of the invention. The passage **32** may be incorporated into a housing **34** of the computer system **30** as shown, or the passage may be
15 incorporated into a conduit (not shown) that is separate from the computer system. In the passage **32** (discussed in greater detail in conjunction with **FIG. 3**) one or more communication media, such as, for example cables and wires (here two cables **38a** and **38b**) are disposed. The cable **38a** couples a peripheral device **40** (here a camera) to an interface **41** and the cable **38b** couples another peripheral
20 device **44** (here a portable, electronic personal data manager — PDM) to the interface. The passage **32** includes one or more openings through which the cables **38a** and **38b** may extend to couple the camera **40** and PDA **44**, respectively, to the interface **41**. For example, the passage **32** includes a first opening **46** through which the cables **38a** and **38b** extend, a second opening **48**
25 through which the cable **38b** extends, and an auxiliary opening **50** through which the cable **38a** extends. By routing the cables **38a** and **38b** through the passage **32**, the housing **34** reduces the cables' exposure, and thus reduces the cables' chances of getting inadvertently snagged and/or pulled. Therefore, the housing **34**

protects the cables **38a** and **38b**, peripheral devices **40** and **44**, and the interface **41** from damage.

[7] The housing **34** includes a back **51** comprising an opening **53** that holds the interface **41**. The interface **41** couples the cables **38a** and **38b** to
5 processing circuitry (not shown) to allow the circuitry to read data from and/or write data to the camera **40** and PDA **44**. For example, the circuitry may read data stored in the camera **40** to generate a digital photograph. The interface **41** includes attachments—that is, connectors—**52** and **54** (only two of eight connectors shown are referred to with reference numbers) that mate with corresponding connectors
10 **56** and **58** of the cables **38a** and **38b**, respectively, to couple the cables to the interface.

[8] Still referring to **FIG. 2**, the housing **34** may also include a storage compartment **60** for storing one or more items (here the PDA **44**). The storage compartment **60** includes a door **62** that may be positioned to close the storage
15 compartment (shown) and to open the storage compartment (not shown). With the door **62** closed, the storage compartment protects the PDA **44** and supports the camera **40**. The storage compartment **60** also includes a passage (not shown) through a rear wall (not shown) to allow the PDA **44** to be coupled to the cable **38b** via the opening **48** when the door **62** is closed. The storage compartment is further
20 discussed in U.S. Patent Application Serial Number titled
STORAGE COMPARTMENT FOR STORING ITEMS, AND RELATED SYSTEMS
AND METHODS and filed, which was previously incorporated herein by
reference.

[9] Other embodiments are contemplated. For example, although the
25 passage **32** is shown located along the top **64** of the housing **34**, the passage **32** may be located along the sides **66** (only one shown), the front (not shown) or the back **68** of the housing **34**, or any combination of these locations. In another example, the computer system **30** may not include the storage compartment **60**, and the second opening **48** may expose the passage to the environment outside
30 the housing **34**. In yet another example, the passage **32** may extend closer to the

interface **41** to further reduce the exposure of the cables **38a** and **38b**. In yet another embodiment, some or all of the connectors of the interface **41** may be located inside the passage **32** or close to the second opening **48**. In yet another example, although the computer system **30** is shown in **FIG. 2** with the housing **34** in a tower configuration, the housing may be in a desktop configuration.

[10] To couple the processing circuitry (not shown) to the camera **40** and the PDA **44**, the cables **38a** and **38b** may be routed through the passage **32** as desired. For example, in one embodiment the PDA **44** is coupled to the circuitry before the camera **40** is coupled to the circuitry. Assuming, the PDA **44** is not initially stored in the storage compartment **60**, one first moves the door **62** to open the storage compartment. Next, one may insert the end **70** of the cable **38b** through the first opening **46**, and push the end through the passage **36**, the second opening **48**, and the passage in the back wall of the storage compartment **60**. Next, one may couple the end **70** to the PDA **44**; place the PDA in the storage compartment **60**; and close the door **62** to the storage compartment. Then, one may couple the connector **58** to the connector **54** to complete the coupling of the PDA **44** to the processing circuitry. To couple the camera **40** to the circuitry, one may first insert the end **72** of the cable **38a** through the first opening **46** and push the end toward the auxiliary opening **50**. When the end **72** is adjacent the auxiliary opening **50**, one may grasp the end and pull it through the auxiliary opening. Next, one may couple the end **72** to the camera **40** and place the camera on top of the storage compartment's door **62**. Next, one may couple the connector **56** to the connector **52** to complete the coupling of the camera **40** to the circuitry.

[11] **FIG. 3** is a perspective, exploded view of a portion of the housing **34** in **FIG. 2** that incorporates the passage **32** according to an embodiment of the invention. The housing **34** includes a top **76**, and a body **78** having a bottom **80** and a sidewall **82** that together with the top define the passage **32** when the top is fastened to the body. The top **76** may be releasably fastened to the body **78**, or the top may be integral with the body. The top **76** and body **78** may be made of any desirable material. For example, in one embodiment the top **76** and body **78** are formed by casting conventional plastic in a mold.

[12] The passage 32 may have any desired shape. For example, in one embodiment the first and second openings 46 and 48 (FIG. 3) that are formed when the top 76 is fastened to the body 78 may be aligned, and the passage 32 may be substantially rectangular. The passage 32 includes a longitudinal axis 84, and a cross-section 86 that is substantially perpendicular to the axis 84 and has an area. The first and second openings 46 and 48 have respective areas substantially perpendicular to the axis 84. In one embodiment, the area of the first opening 46 is less than the area of the second opening 48, and the passage 32 tapers such that the area of the cross-section 86 increases as the distance of the cross-section from the first opening 46 increases.

[13] Other embodiments are contemplated. For example, the first and second openings 46 and 48 may not be aligned and the passage 32 may curve as it extends from the first opening toward the second opening. In another example, the passage may include a chamber that has a large cross-sectional area to allow one to coil a cable in the passage, and thus, dispose a longer section of the cable in the passage. This may be desirable when a device is located a short distance away from the processor but the cable used to couple the device to the processor is long.

[14] Still referring to FIG. 3, the passage 32 may include the auxiliary opening 50 to allow the cable 38a (FIG. 2) to extend through the passage without having to pass through both openings 46 and 48. For example, in one embodiment, the passage 32 includes the auxiliary opening 50 through the top 76, and the top includes a cap 88 that may be moved relative to the top to open and close the auxiliary opening. The cap 88 includes tabs 90, and the top 76 includes receptacles 92 (only one shown for clarity) each sized to receive a respective one of the tabs to retain the cap when the auxiliary opening 50 is closed. To open the auxiliary opening 50, one moves the cap 88 parallel to the axis 84 to withdraw the tabs 90 from the respective slots 92, and thus separate the cap 88 from the top 76.

[15] Other embodiments are contemplated. For example, the passage 32 may include an auxiliary opening through the bottom or sidewall. In another

example, the passage **32** may include more than one auxiliary opening. In another example, Velcro® (not shown) may fasten the cap **88** to the top. In yet another example, a hinge may fasten the cap **88** to the top, and thus the cap could be pivoted relative to the top to open and close the auxiliary opening **50**.

5 **[16]** The auxiliary opening **50** may be desirable when the availability of the opening **48** is restricted. For example, the second opening **48** may open to the interior (not shown) of the storage compartment **60**, as discussed above in conjunction with **FIG. 2**, and thus require one to extend the cable **38a** into or
10 **32**. This may be difficult if the storage compartment is occupied by a device that is not to be coupled to the cable **38a**. But, with the auxiliary opening **50** located through the top **76**, the cable **38a** can avoid the storage compartment **60** when coupling an external device, such as the camera **40** to the processing circuitry (not shown) via the passage **32**.

15 **[17]** Still referring to **FIG. 3**, the top **76** may be releasably fastened to the body **78**, and the body may be fastened, releasably or not, to the remainder of housing **34** (**FIG. 2**) or the body may be integral with the remainder of the housing. For example, in one embodiment the top **76** includes posts **94**, and the body **78** includes slots **96** each sized to receive a respective post. To fasten the top **76** to
20 the body **78**, one first aligns each post **94** with a respective one of the slots **96** and inserts each post into the respective slots by moving the top toward the body. Then, one moves the top **76** parallel to the axis **84** to locate each post **94** beneath the wall **98** of the body **78**, and thus retain the top to the body. The body **78** may be fastened to the housing using conventional fastening techniques such as gluing.

25 **[18]** Other embodiments are contemplated. For example, Velcro® (not shown) may fasten the top **76** to the body **78**. In another example, one or more screws or an adhesive may fasten the top **76** to the body **78**.

[19] Still referring to **FIG. 3**, the top **76** includes a top surface **100** that may be shaped as desired. For example, in one embodiment the top surface **100** is

substantially flat and able to support a device placed on top of it. In other embodiments, the top **76** may include a receptacle in the outer surface **100** sized to receive and retain a device, or the outer surface **100** may be concave or convex.

[20] The preceding discussion is presented to enable one skilled in the art
5 to make and use the invention. Various modifications to the disclosed
embodiments will be readily apparent to those skilled in the art, and the generic
principles herein may be applied to other embodiments and applications without
departing from the spirit and scope of the present invention. Thus, the present
invention is not intended to be limited to the embodiments shown, but is to be
10 accorded the widest scope consistent with the principles and features disclosed
herein.